

Claims

1. Fuel cell with a separator (1) disposed between two electrolyte-electrode units (2), which separator is formed from two plates (3,4) each having an embossing (5) and touching at contact surfaces (6), a fluid chamber (9) for a coolant being formed between the two plates (3, 4) and a fluid chamber (7,8) for a gas being formed between each plate (3,4) and the adjacent electrolyte-electrode unit (2) in each case,
5 characterized in that the fluid chamber (9) for the coolant has two subchambers (10, 11) each facing a plate (3,4) and that coolant can only flow through said fluid chamber alternately through the two subchambers (10,11).
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2. Fuel cell according to claim 1,
15 characterized in that the plates (3,4) have at least approximately identical embossings (5).
3. Fuel cell according to claim 1 or 2,
20 characterized in that the embossings (5) are formed as essentially circular depressions.
4. Fuel cell according to claim 3,
25 characterized in that the embossings (5) of the plates (3,4) are offset relative to one another.
5. Fuel cell according to claim 1 or 2,
30 characterized in that the embossings (5) of the plates (3,4) are essentially rib-shaped.
6. Fuel cell according to claim 5,
characterized in that the embossings (5) of the plates (3,4) are rotated relative to one another.

7. Fuel cell according to one of claims 1 to 6,
characterized in that the contact surfaces (6) are gold-plated.

5 8. Fuel cell according to one of claims 1 to 7,
characterized in that the contact surfaces (6) are distributed
at least approximately uniformly over the surface of the
separator (1).

10 9. Fuel cell according to one of claims 1 to 8,
characterized in that the total surface area of the contact
surfaces (6) is at least 10% of the surface area of the
separator (1).

15 10. Fuel cell according to one of claims 1 to 9,
characterized in that the total surface area of the contact
surfaces (6) is no more than 90% of the surface area of the
separator (1).

20 11. Heating device of a fuel cell, specifically according to
one of claims 1 to 10, having a flow directing element disposed
between opposite edge plates (2'),

characterized in that the flow directing element is formed as a
heating element (1') from two plates (3,4) each having an
25 embossing (5), a flow chamber (7,8) being formed between the
heating element (1') and an edge plate (2') in each case and
another flow chamber (9) being formed between the plates (3,4),
the last mentioned flow chamber (9) having subchambers (10,11)
each facing a plate (3,4), which subchambers provide a flow
30 path solely on an alternating basis.